A MINIMALIST/COGNITIVE APPROACH TO BERBICE DUTCH TMA

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1. INTRODUCTION. This paper will address two questions: (1) What are the cognitive and syntactic principles that underlie the creation of grammatical systems like those we find among the world's creoles? (2) What are the principles that constrain the linguistic source of the lexical and grammatical forms that appear in the creole? In order to answer the first question, this paper takes the position that language contact phenomena such as creole formation involve the creation of an abstract composite grammar; that is, the grammatical frame that structures the surface constituents of the emerging language is largely made up of projections of lexical structure from the substrate and to a lesser extent from the superstrate. This notion of a composite grammar derives from the idea that lexical structure is composed of three levels (Abstract Level Model): (1) lexical-conceptual structure; (2) predicate-argument structure; (3) morphological realization patterns (Talmy 1985, Jackendoff 1990, Myers-Scotton & Jake 1995). Importantly, abstract lexical structure can be split and recombined so that parts of the lexical structure projecting the grammatical frame may come from different sources. This paper provides evidence for a composite grammar underlying creole formation. To answer the second question, this paper recognizes an asymmetry between lexical heads and functional heads in terms of both their properties and behavior in the syntax and in the level at which they are accessed in the production process. Furthermore, two types of functional heads are distinguished: conceptually-activated functional heads, those that are accessed early in the production process and selected by their lexical heads, and structurally-assigned functional elements, those that are accessed late in the production process and required by the syntax. Implicit in this distinction is that speakers engage in a morpheme sorting strategy during the production process. The asymmetry between lexical heads and early and late functional elements determines how the lexicon contributes to building the creole grammatical system.

The view of syntactic structure I take follows from Kayne's (1994) Linear Correspondence Axiom (LCA) which claims that all phrase structure is universally head-first. The LCA ensures that hierarchical structure is uniquely mapped onto linear order; all complements follow their heads, and all specifiers precede heads. Furthermore, all movement is leftward. Thus, all forms of right adjunction—right dislocation, right node raising, heavy NP shift, relative clause extraposition—for example, must be reanalyzed as cases of stranding. Word-order differences among the world's languages are then reduced to two factors: (1) a movement parameter in which movement may be overt or covert, and (2) the language-specific selectional properties of functional heads (Ouhalla 1991). Following Chomsky (1995), I assume that overt movement is more 'costly' than covert movement and that the universally unmarked case is movement at LF. This paper argues that the similarities in the surface structure of the world's creoles is a consequence of exploiting the unmarked choice regarding movement.

2. MOTIVATING THE THEORETICAL FRAMEWORK. Myers-Scotton (1997) and Winford (1997) suggest that the principles at work in other language contact situations such as second language acquisition (SLA) and codeswitching (CS) play a guiding role in creole formation. The hypothesis presented in this paper is that creole formation progresses in a similar way to adult SLA.

2.1. MOTIVATING THE ABSTRACT LEVEL MODEL. Support for a language production model that views lexical structure as composed of three abstract levels comes from interlanguage data. The interlanguage that develops during SLA only approximates target language structures in that it contains morphemes from the target language; however, these morphemes are not always used in a

targetlike way. During the early stages of SLA, learners' lexical knowledge may be limited in that they may not have acquired all the components of abstract lexical structure. Specifically, the interlanguage variety may display divergent lexical-conceptual structure, predicate-argument structure, and morphological realization patterns. These gaps in lexical knowledge can be filled in from the abstract lexical structure of the L1 (Jake 1998). What emerges in a situation like this is an interlanguage grammatical frame that is a composite of features from both the TL and L1. The examples in (1-2) show how Chinese and Japanese learners of English construct an L1 grammatical frame filling the slots mainly with English lexical heads. In (1) from Chinese learners' interlanguage, the argument structure of the verb *help* reflects Chinese predicate-argument structure: *help* assigns Theme to its argument as required in Chinese. In (2) from Japanese learners' interlanguage, the word order and placement of the negator reflect Japanese morphological realization patterns: word order is SOV and negation is realized by placing the negative element after the verb as required in Japanese.

(1) Today he help dinner (Wei 1996:422).
(2) Speak English difficult. I English...speak not well (Wei 1996:421).

Interlanguage constituents that display this sort of compositing effect can be thought of as type of CS. Although all the morphemes may come from one language, the abstract lexical structure comes from different sources and is split and recombined in constructing the grammatical frame.

2.2. MOTIVATING THE MORPHEME SORTING PRINCIPLE. Independent support for a position that lexical heads and early and late functional heads are subject to different constraints on occurrence comes from research on speech errors and Broca's aphasia. In phrase exchange errors, shown in (3), verbs tend to agree with the subject that is actually produced rather than with the subject that was intended. These data support the argument presented in this paper that agreement morphology is a late process; that is, agreement is checked after the syntactic frame has been set. Contrast (3) with (4) in which the lexical heads *light* and *picture* exchange places, yet the plural affix is 'dragged along' with its intended noun. Plurality seems to accessed early in the production process; that is, it is pragmatically and semantically relevant, and the bond between the early functional element and its lexical head is difficult to break. The model presented here offers an explanation for the asymmetry between tense-agreement morphology and plural morphology.

(3) even the best team losts
Target: ...best teams lost (Garrett 1990:162)
(4) I presume you could get light in poorer pictures
Target: ...pictures in poorer light (Stemberger 1985:162)

Research on individual's with lesions to Broca's area display differential accessing of these two classes of functional elements as well as differential accessing of lexical heads and functional elements in general (Ullman et al. 1997).

3. A PRINCIPLED EXPLANATION FOR CREOLE FORMATION. This paper argues that creole formation is a kind of second language acquisition. Where creole formation differs from SLA is that creole speakers have less lexical knowledge of target language forms because of the extreme conditions on the plantation and because of the numerically high ratio of African slaves to European overseers. Yet, like interlanguage development, creole formation involved the creation of a composite grammar since it includes morphemes and grammatical structures from several sources. The argument follows that the language that is the source of most of the lexical forms, the superstrate, cannot be the source of the grammatical frame because it is not completely available to the learner at one or more levels. Instead, the abstract grammatical frame underlying creole surface structure is a composite; it is largely made up of projections of lexical structure from the substrate and to a lesser

extent from the superstrate. The examples in (5), from Tok Pisin, and (6), from Tigak, illustrate these basic insights. In (5), English is the source for all surface morphemes, while the Austronesian substrate provides the much of the grammatical frame. For example, although English *him*, a lexical head, is the source of *-im* in Tok Pisin, it is reanalyzed as a transitive marker, a functional element, and reflects the substrate morphological realization patterns (compare with an equivalent example from Tigak in (6)). The source of Tok Pisin *pait* is the English verb *fight*. Its lexical-conceptual structure has been reanalyzed; that is, its semantic/pragmatic content is no longer what it is in the superstrate.

(5) em i pait-im mi
3SG PM fight-TRAN me
'He hit/hits me' (Tok Pisin, Jenkins 1997)

(6) gi vis-i ri
3SG.SUB hit-TRAN them
'He hit them' (Tigak (typical Austronesian), Jenkins 1997)

Four hypotheses to account for why only certain structures occur in creoles will be developed in this paper (modified from Jake & Myers-Scotton 1998).

H1: Conceptually-activated morphemes, lexical heads and early functional elements, can come from any of the superstrate or substrate varieties spoken in the community.
H2: What the superstrate can contribute depends on the status of the superstrate morpheme in the mental lexicon of the creole speakers.
  a. Superstrate lexical heads may be reanalyzed but need not be.
  b. Superstrate late functional elements cannot be reanalyzed; hence, they cannot occur in creoles except as frozen forms.
H3: Universal syntactic principles including the selectional properties of functional heads contribute much of the morphological realization patterns. The creole may also retain the morphological realization patterns of the substrate.
H4: All creole functional elements derived from the superstrate are composites; functional elements derived from the substrate satisfy all the abstract lexical structure requirements of the substrate.

The assumption that lexical structure is modular and may be split and recombined, that morphemes are distinguished along three dimensions, and that a morpheme sorting principle operates in instances of language contact provides both a mechanism and an explanation for creole formation because it predicts creole grammatical structure in a principled way. Implicit in the approach taken in this paper is the position that all language contact phenomena are governed by the same set of structural constraints; only the details of how these constraints interact in the various phenomena differ. Differences in the socio- and psycholinguistic conditions, including degree of bilingualism, are the major factors responsible for the structural outcome.

4. TESTING THE HYPOTHESES. Berbice Dutch, a language which has been described as a creole that emerged during the seventeenth and eighteenth centuries in present-day Guyana, provides the data to test the hypotheses presented in section 3. Berbice Dutch is of interest for two reasons: (1) a high proportion of African-derived basic vocabulary, and (2) the existence of African inflectional morphology. Berbice Dutch is important for another reason: During the early years of the Berbice colony, from 1627 to at least 1688, it is likely that the slaves brought to the colony spoke a single African language, Eastern Ijo (Smith, et el. 1987). This was followed, in the early eighteenth century, by a period of rapid expansion during which the Dutch imported many more slaves from various African sources. Unlike other sociopolitical contexts in which creoles emerged, in the Berbice colony, at least during those crucial early years when the foundation for the creation of Berbice Dutch was laid, the substrate was composed of a single language. The assumption is that prior to

the importation of slave from linguistically diverse backgrounds, the Eastern Ijọ slaves planted the seeds for the creation of Berbice Dutch in four ways:

(1) Since the Berbice colony was initially a small concern having only five sugar estates in as late as 1688 (Netscher 1888) and the number of linguistically homogeneous slaves was few, perhaps less than 100 (Smith et al. 1987), the slaves had little motivation to use the medium of communication established for interacting with their Dutch overseers among themselves. They maintained their L1 to communicate with each other.
(2) Sixteenth-century Zeelander Dutch acted as a target of learning for the Eastern Ijọ slaves; however, as in other creole formation contexts, the lexical knowledge these slaves had of the target was deficient especially regarding lexical-conceptual structure and morphological realization patterns.
(3) Since the Eastern Ijọ slaves must have achieved some degree of bilingualism, the language they spoke with each other contained many CS forms; the Kalabarị dialect of Eastern Ijọ acted as the language providing the abstract grammatical frame for bilingual production during this stage. The language-contact model presented here predicts that Dutch lexical heads represented the bulk of these CS forms; however, since the lexical knowledge of these forms was limited, many were used in non-targetlike ways.
(4) By the time the Dutch began importing slaves from other parts of Africa in the early eighteenth century, the language spoken by the original slaves and their descendants exhibited a composite of features from Dutch, Eastern Ijọ, and possibly universal strategies and had already crystallized. This language then served as the medium of communication between the EI slaves and the newcomers.

4.1. BERBICE DUTCH: A BRIEF BACKGROUND. Berbice Dutch is one of only three creoles based on a Dutch lexicon to have emerged in the former Dutch colonies of the Caribbean. The historical and sociopolitical factors responsible for the emergence of this language seem to place it on a continuum of language contact varieties somewhere between the Atlantic creoles and 'mixed languages' like the one that emerged in the nineteenth century on Java, Petjo, as a result of contact between Dutch and Malay speakers (cf. van Rheeden 1994). The linguistic outcome of the intersection between Dutch speakers and Eastern Ijọ speakers reflects this intermediary status as well. In this way, Berbice Dutch makes, perhaps, the strongest statement in favor of substrate influence in creole languages.

In general, Caribbean creoles have derived the bulk of their basic vocabularies from their European lexifier, and those lexical items that can be ascribed to a given substrate language usually involve those items of social, religious, and material culture retained from Africa or simply those items of everyday life the slave wished to keep secret from the Europeans. In Berbice Dutch, however, we find a very different situation. Here we find a large percentage of basic vocabulary from African etyma. Table 1 summarizes the lexical contributions of various languages to Berbice Dutch based upon the Swadesh 100- and 200-basic word list.

Table 1. Summary of the source languages for BD basic vocabulary based upon the Swadesh 200- and 100-word list (percent). (Adapted from Kouwenberg 1994:530)

	Du	EI	Ar	GCE	Other/Unknown
200-word list	60	27	1	0.5	11.5
100-word list	56	38	1	0	5

(Du=Dutch; EI=Eastern Ijọ; Ar=Arawak; GCE=Guyanese Creole English)

The figures in Table 1 show that Berbice Dutch possesses a high proportion of basic vocabulary derived from a single African source. Although Saramaccan is usually cited as the most African

among Caribbean creoles, this claim is based on vocabulary that is associated with only narrow semantic fields. Analyzing the Saramaccan lexicon in terms of the Swadesh lists, we get a figure of approximately five percent attributable to Africa spread over several languages such as Kikongo, Yoruba, and Wolof (Smith et al. 1987). What we see in the case of Berbice Dutch is a lexical system that owes much to West Africa.

In addition to the EI contribution to the BD lexicon, Eastern Ijọ is the single source for productive inflectional and derivational morphology. Whereas other creoles in the region mark tense, mood, and aspect by using independent morphemes, Berbice Dutch has a mixed TMA system. Like other Caribbean creoles it uses preverbal independent morphemes to mark tense and mood; however, it has retained two aspectual suffixes from Eastern Ijọ. Finally, Eastern Ijọ is the source of a suffix used as a noun pluralizer and of a productive derivational suffix that nominalizes adjectives and pronouns.

Berbice Dutch provides a test case for the claims regarding creole formation made previously. Unlike other creoles, the substrate involved during the initial period of contact can be clearly identified. While Dutch must have been a target of learning for the EI slaves, much of the emergent grammatical frame is non-Dutch; instead, it is a composite of abstract lexical structure from the two languages in contact. Since the EI speakers lacked the necessary lexical knowledge to shift completely to Dutch, those Dutch morphemes that are present in the BD grammar did not bring with them the late functional elements of the TL. The apparent presence of Dutch late functional elements in Berbice Dutch is simply a consequence of the speakers' deficit in lexical knowledge of the Dutch forms. The superstrate functional elements that came into the grammar were not recognized as such because the EI speakers lacked knowledge of the morphological complexity of the forms. The following analysis is not intended as a comprehensive study of Berbice Dutch. Rather, it focuses only on the internal structure of the TMA system to provide support for the claims presented. This analysis will illustrate the utility of this framework in predicting what is possible and what is impossible in language contact situations.

5. CREATING A COMPOSITE GRAMMAR. The Berbice Dutch IP is a composite of grammatical features that reflects splitting and recombining abstract lexical structure at several levels. While aspectual marking strategies have been retained from the EI grammatical system, tense and mood are expressed with preverbal particles derived from the Dutch auxiliary verb system, as they are in other Caribbean creoles.

5.1. WORD ORDER. The basic BD word order is SVO, which patterns with other Caribbean creoles. In the following example, the subject *tigr* occupies the position immediately preceding the verbal complex; the object *skelpa* immediately follows.

(7) tigr ma jefi skelpa
tiger IRR eat tortoise
'Tiger is going to eat Tortoise.' (Kouwenberg 1994:497)

Since the language uses no overt morphological case-marking system, Berbice Dutch relies strictly on word order to disambiguate the arguments of the verb. To express a given argument structure only one word order is possible; a different arrangement of the arguments gives a different reading of the sentence.

Decades of syntactic research have relied on certain assumptions to account for word-order variation among the world's languages. Key among these assumptions is the Head Parameter which states that Universal Grammar captures the word-order variations between languages in a simple two-option parameter—head-initial or head-final. Implied in the syntactic analyses of a

wide range of languages is that constituent raising also involves a parametric choice between two settings—movement to the left or movement to the right. These assumptions have been central in the syntactic analysis of both Ịjọ and Dutch. The example in (8) from the Kalabarị dialect exemplifies the surface SOV character of the substrate language.

(8) o ye fíbẹ́ múárí
he thing eat-FUT go-IPF
'He is going to eat.' (Jenewari 1977, cited in Kouwenberg 1993:292)

In (8), the standard assumption is that Eastern Ịjọ phrase structure is head-final and that the verbs raise to the right into the functional domain to check their tense and aspectual features.

For Dutch, a debate continues to rage regarding its unmarked phrase structure. In Dutch, the surface word order in main clauses is SVO, while in subordinate clauses we see SOV word-order patterns. Koster (1975) argues that the structure of the IP and the VP is head-final, as most researchers have contended for more consistent SOV languages like Turkish and Japanese. Other Dutch phrases, viz., CPs, DPs, and PPs display patterns typical of SVO languages and are taken to be head-initial. The asymmetry between main clauses and embedded clauses regarding the position of the finite verb is illustrated in (9-10).

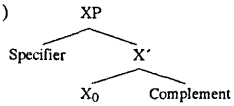
(9) zij kus-te hem
3SG.FEM. kiss-PAST 3SG.MAS
'She kissed him'

(10) ...dat zij hem kus-te
that 3SG.FEM 3SG.MAS kiss-PAST
'...that she kissed him'

Despite this mixed character, since Koster's (1975) work, it has been assumed that the subordinate-clause word order is basic and that the main-clause word order is derived from an 'underlying' SOV phrase structure. The position of the finite verb in the main clause in (9), in these types of approaches, is due to the V2 effect in which the verb raises to C_0.

Recently, however, these assumptions have been questioned, most notably in the work of Zwart (1993, 1994). In these works, Zwart takes the position articulated by Kayne (1994) that ALL languages follow the same universal structure-building operation illustrated in (11).

(11)



Zwart proposes that Dutch and other Germanic languages exhibiting these same sorts of clausal asymmetries are in fact SVO languages and that embedded-clause word orders are derived from this universal specifier-head-complement phrase structure. Furthermore, all constituent movement is to the left. The implications for such a view of the human language faculty are far-reaching. If Kayne and Zwart are on the right track, then we must recast some of the foundations of our syntactic knowledge. All forms of right adjunction—right dislocation, right node raising, heavy NP shift, relative clause extraposition—for example, must be reanalyzed as cases of stranding. If all movement is motivated by UG licensing principles requiring, for example, that abstract grammatical features be checked at some level of the grammar or that every clause have a structural subject situated outside the predicate phrase (predication requirement of UG), then the differences in the

surface linear order of constituents among Ijọ, Dutch, and Berbice Dutch are simply a matter of which movement rules the language exploits and whether those movements occur before or after Spell-Out, i.e., whether Move α is overt or covert. However, ALL movement must be motivated by licensing requirements, and once those requirements are formally met then the moved element becomes inert in terms of additional movements. Moreover, economy of derivation dictates that these movements take place as late in the derivation as possible, formulated as a separate principle, Procrastinate (Chomsky 1995:42). Since overt movement must be motivated, the unmarked choice for languages is covert movement.

The structural characteristics of Berbice Dutch and all other creoles are a consequence of a universal head-initial principle derived from the LCA. In addition, the hierarchical ordering of TMA particles is perhaps a universal cognitive mechanism of arranging a logical predication. These, I claim, are the sources of the striking similarities among the world's creoles. Hence, BD surface word order is not surprising at all; in fact, it is predictable if we start with the assumption that languages are universally head-initial and that the human psycholinguistic design is programmed to order the world in certain way. Thus, not only does this view of syntactic structure predict that all creoles exhibit syntactic similarities, but that ALL natural languages reflect these same similarities. What distinguishes creoles from other languages is that creoles exploit the unmarked option regarding movement, i.e., they rely on covert movement to a great extent.

5.2. TENSE. The example in (12) focuses on the past tense morpheme *wa* (examples (13) and (14) are equivalent sentences from Dutch and Eastern Ijọ respectively). Clearly, the Dutch past tense singular auxiliary verb *was* 'be.PST.SG' is the source of BD tense marker. In Dutch this morpheme must be a late functional element since it encodes both tense and agreement which cannot be realized until the verb enters into a checking relationship in the head of Agr with the subject. It is true that *zijn*, the infinitive form, is activated at the lexical-conceptual level since Dutch distinguishes between verbs of motion and change of state and other lexical verbs. The lexical verb 'points to' or selects the appropriate auxiliary, *zijn* 'be' to mark perfective for verbs of motion and change of state, and *hebben* 'have' to mark perfective for other lexical verbs, to realize the speakers intentions. The EI speakers, however, had no access to the internal morphological structure of these forms and limited access to the complexities of their abstract lexical structure; instead, they reanalyzed *was* as a lexical verb taking a VP as its argument. The lexical knowledge that these speakers had included only the general sense that in Dutch *was* marks states and events for past time. So this form appears as a frozen form in the BD grammar; all that remains from Dutch is a phonological shell. All levels of abstract lexical structure are reconstructed anew. At the level of morphological realization patterns, this element has the characteristics of other tense markers in creole languages. Although there is no evidence of a lexical contribution to the BD grammar from the linguistically diverse African slaves that the Dutch brought to the colony in the eighteenth century, who may have spoken a generalized Dutch creole, the morphosyntactic properties of the tense and mood particles may reflect their influence.

(12) a wa mu met eni
3SG PAST go with 3PL
'he went with them' (Kouwenberg & Robertson 1988:161)

(13) Hij was met hen ge-gaan
3SG be-PAST with 3PL PRT-go
'he went with them'

(14) ọ nama tẹị ḅa-m
3SG animal shoot kill-PAST
'he shot an animal' (Kouwenberg 1994:292)

5.3. MOOD. The analysis of the BD mood particle *sa* 'IRR' follows the analysis of the past tense marker. Example (15) provides an illustration of how this element is used in Berbice Dutch (examples (16) and (17) are equivalent sentences from Dutch and Eastern Ijọ respectively). The source of the irrealis marker in Berbice Dutch is the Du. modal auxiliary *zal* 'shall'. Following Bresnan (1982) and Levelt (1989), modal auxiliaries in languages like Dutch are activated at the conceptual level and have a predicate-argument structure in that they take VP arguments. Nevertheless, in Dutch they are complex forms in that they contain tense and agreement morphology; hence in the mental lexicon of Du. speakers *zal* is a late functional element. As with the case of the past tense marker, the EI speakers had no access to the internal morphological structure of this form. Instead, they interpreted it as a lexical verb. In Berbice Dutch it functions as a lexical head since it must be activated at the conceptual level to realize the speaker intentions of probability, and its overt form depends on nothing else. It has been reanalyzed as an irrealis marker in the creole.

(15) ɛk sa fam o morko
1SG IRR finish 3SG tomorrow
'I might finish it tomorrow (if nothing interferes)' (Kouwenberg 1994:70)

(16) ik zal het breng-en
1SG shall 3SG.NEUT bring-INF
'I will bring it'

(17) wó ị-mǫ́mǫ sụ-ŋ́ɲ́mị-èé
1PL 2SG-with fight-FUT-EMPH
'we will fight you!' (Williamson 1965:85)

5.4. ASPECT. The example in (18) shows the use of the one of two aspectual suffixes retained from the substrate. In (18), the perfective suffix *-tɛ* appears to match all levels of abstract lexical structure of its source language, Eastern Ijọ, and this is shown by comparing (18) with the example in (19). In Eastern Ijọ, this suffix is an late functional element since its form depends upon whether the speaker's intention is to express a negated proposition or an affirmative one; the perfective suffix can not occur within the scope of negation. Instead, an adverbial particle *nâà* 'yet' is used to mark negative perfective. This is illustrated by comparing (20) and (21). In Berbice Dutch, the occurrence of the perfective suffix depends on whether the proposition is negative or affirmative as well (compare example (22) with (18)). In (22) a special negative resultative modal verb must be used in negated perfective propositions. This pattern mimics the one in (21) with regard to morphological realization patterns. All levels of abstract lexical structure were retained from Eastern Ijọ in forming the BD perfective suffix, and its category is the same in Berbice Dutch as it is in Eastern Ijọ: It is a late functional element.

(18) eni kiki-tɛ ɛkɛ
3PL see-PF 1SG
'they saw me' (Kouwenberg 1994:525)

(19) aŋ̀ ǫŋ̀ ẹŋ́-tɛ́ɛ̄
1SG 3sg see-PF
'I saw him' (Jenewari 1977:463, cited in Kouwenberg 1993:280)

(20) a bó-dọụ
3SG come-PF
'She has come' (Williamson 1965:74)

(21) a nâà bó-a
3SG yet come-NEG
'She has not yet come' (Williamson 1965:74)

(22) di toko no-ko fɛndɛ ka
the child not-RES find NEG
'The child wasn't found' (Kouwenberg 1994:321)

Examples of the imperfective suffix in Berbice Dutch and Eastern Ijọ are given in (23) and (24) respectively. It appears that in Eastern Ijọ the imperfective suffix *-ari* is an early functional element. It is elected at the conceptual level, and its form depends on nothing other than the speaker's intentions. Its reflex in Berbice Dutch *-arɛ* exhibits the same patterns of occurrence, and its form depends on no information other than the speaker's intentions. All levels of abstract lexical structure conform to the substrate, and its status in Berbice Dutch is an early functional element.

(23) en mw-a krɛk ben
3pl go-IPF creek inside
'They were going into the creek' (Kouwenberg 1994:61)
(24) árị fụ́lọ́ sọọ-arị
she soup cook-IPF
'She was cooking soup' (Kouwenberg 1993:290)

6. CONCLUSION. The analysis offered in this paper provides a principled account of the data from Berbice Dutch and also indicates the usefulness of the cognitive model of language production presented here for other language contact phenomena. The data show that speakers engage in a morpheme sorting process and that since lexical structure is abstract and modular, it may be split and recombined in complex ways. When learners have limited access to TL lexical structure, the gaps may be filled in with lexical structure from the L1. The data also show that because of learners' lack of access to lexical structure, superstrate late functional elements may appear in the creole; however, they appear as frozen forms. Creole speakers do not have access to the deep structure of morphologically complex forms; what they do have access to are the conceptually activated representatives of those complex forms. So, late functional elements, if they are required for the creole grammar, are usually analyzed as lexical heads by the creole speakers. The data in sections 5.2 and 5.3 regarding the tense and mood particles show this most clearly. Finally, the data from the aspectual system of Berbice Dutch showed that the substrate may provide its own late functional elements to the creole grammar and that these retain all aspects of the abstract lexical structure in the substrate. The explanation for why this happened in Berbice Dutch, but did not happen in other Caribbean creoles is because during the early years of the Berbice colony, all the substrate speakers were a linguistically homogeneous lot. It is likely that they maintained their L1 for a considerable time and that they used it in interacting with each other.

The approach taken here does not discount the possible influence of African slaves from other linguistic backgrounds or of the possibility of the influence of language universals. In fact, either of these factors is a likely candidate for the emergence of the tense and mood particles in Berbice Dutch. Moreover, the emergence of an SVO word order in the absence of an unambiguous model suggests the workings of a universal strategy captured by the LCA. Nevertheless, whatever factors contributed to the presence of independent tense/mood particles in the BD grammatical system, they must surely be constrained by the cognitive principles developed in this paper. It is perhaps no accident, then, that TMA markers derived from superstrate auxiliary verb systems are so common in the world's creoles. The conceptual properties that distinguish them for the purposes of marking modal and temporal qualities are perhaps the only level of lexical structure available to creole speakers. The main goal of this paper has been to present a model that makes specific predictions about substrate and superstrate interactions, leaving the hypotheses advanced here open to further testing.

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